Report for 2005ME51B: Penobscot Synthesis

Publications

- Articles in Refereed Scientific Journals:
    - Peckenham, J.M., C.V. Schmitt, J.L. McNelly, and A.L. Tolman. Linking water quality to the watershed: developing tools for source water protection. Journal AWWA 97:62-69. (September 2005)
- Other Publications:
    - "Beneath the surface: Uncovering the environmental history of the Penobscot River," Mitchell Center Spring 2006 Lecture Series, University of Maine, January 19, 2006.
    - "Communicating ecosystem restoration: Dam removal as a case study," presented at the 2005 Meeting of Universities Council on Water Resources/National Institutes of Water Resources, Portland, Maine, July 12-14, 2005.
    - "Penobscot River future tied to past," Bangor Daily News, December 26, 2005, p.C1, C3. "Fewer dams let Penobscot River flow," Bangor Daily News, December 27, 2005, p.C4.
    - Schmitt, C., and J. Peckenham. Arsenic in Maine Groundwater. Senator George J. Mitchell Center for Environmental and Watershed Research Digest Series, Orono, ME. (June 2005)
    - "Sampling 143 lakes in 7 states, 8 weeks," UMaine Today, May/June.
    - A Field Guide to Aquatic Phenomena. Senator George J. Mitchell Center for Environmental and Watershed Research, Digest Series. (May 2005) http://www.umaine.edu/WaterResearch/FieldGuide/.
    - "It's in the water," Atlantic Salmon Journal, Spring 2005.
    - "Honoring Mitchell's environmental legacy," Bangor Daily News, April 21, 2005.

Report Follows

Abstract

The Penobscot River Synthesis is a comprehensive bibliography of over 400 scientific references and resources related to the Penobscot River. The Synthesis is designed for use by scientists and educators interested in the Penobscot River Restoration Project, dam removal research, and the environmental history of the Penobscot River. The references were used to write summaries of major river topics: fisheries, pollution, water quality, watershed geography, hydrology, etc. As part of the Synthesis, a canoe journey down the Penobscot from Howland to Bucksport provided the framework for outreach products and publications, some of which are still ongoing and pending future funding. The Synthesis expanded to include an inventory of current research and monitoring efforts related to the Penobscot, which was instrumental in development of a Seminar Series on Penobscot River research and facilitating the formation of the Penobscot River Science Steering Committee. The Penobscot River Synthesis and the George Mitchell Center are being recognized as the virtual hub for the Penobscot River research community.

Problem and Research Objectives

The announcement of the Penobscot River Restoration Project (PRRP) increased awareness of and interest in the Penobscot River. Scientists in Maine and the region, who view the project as an opportunity for ecological research, are coming together to formulate research proposals. As scientists attempt to address the changes that will result from the restoration, they will need baseline information on status and trends in the Penobscot River ecosystem, traditionally obtained by reviewing literature of past research. It is likely that many will be seeking similar references, driving the need for a single, comprehensive bibliography.

It is not just scientists who are interested in the environmental history of the river. People who live in the communities along the river—and across the country—will be paying more attention as the project advances. The general public likewise should have access to the knowledge gained from the literature review. Science results are not fully realized until they are available to the target community, and one way to accomplish this realization is to convey scientific information in a narrative format

Our objectives were to create a literature review of Penobscot River references and place the bibliography on-line, where it would be accessible to the public and searchable by keyword and watershed location. We also wanted to translate the information for a non-scientific audience into newspaper articles, topical summaries, and other publications.

Methodology

We reviewed all relevant scientific and environmental literature on the Penobscot River using online and library resources at the University of Maine. In addition, we visited the offices and libraries of federal and state agencies, local organizations, and historical societies to inventory their references and relevant data sets. The references were organized using ProCite and Microsoft Access into a database containing bibliographic information, a hydrologic code (USGS HUC) linking the reference to its

location in the watershed, and notes on key findings, sample locations, and data. The references are hosted on PEARL, the on-line database for environmental information in Maine. Whenever possible, references are linked to downloadable/PDF documents. Hard copies of references are housed in the Mitchell Center at the University of Maine. A canoe trip down the river will provide the framework for publications and outreach products that will translate the scientific research from the bibliography will be interpreted along the way.

Principal Findings and Significance.

- The Penobscot River Synthesis can be found at http://www.pearl.maine.edu/windows/penobscot/index.htm
- Over 400 references are in the process of being placed on-line. These references are searchable by keyword, title, author, and watershed. Each reference has been coded by its location in the watershed, and contains notes on sample site locations and sampling parameters.
- The references were used to compile summaries of topics relevant to dam removal (pollution, hydrology, fisheries, etc.), which provide background on Penobscot River ecology. These can be found under "River Topics" on the Web site.
- We completed a canoe journey down the Penobscot River from Howland to Bucksport. This trip provided the framework for a series of articles published in the Bangor Daily News in December 2005 and provided background for future publications and presentations.
- The Synthesis expanded beyond past research to include an inventory of current research and monitoring projects to facilitate research networking. This addition to the project has been instrumental in bringing together members of the Penobscot River Science Steering Committee, an outcome of the 2004 Penobscot River Science Forum. Committee members have agreed that Penobscot River data generated from research and monitoring projects should be housed in PEARL, and that the Mitchell Center is the appropriate entity to coordinate the effort.
- The Synthesis is an ongoing project. We are seeking funding to continue the Synthesis by including a Penobscot River data inventory and evaluation, developing several outreach/publications products, and continuing to serve as the virtual hub for the Penobscot River research community.